Predictive Modeling of Complex Contoured Composite Structures
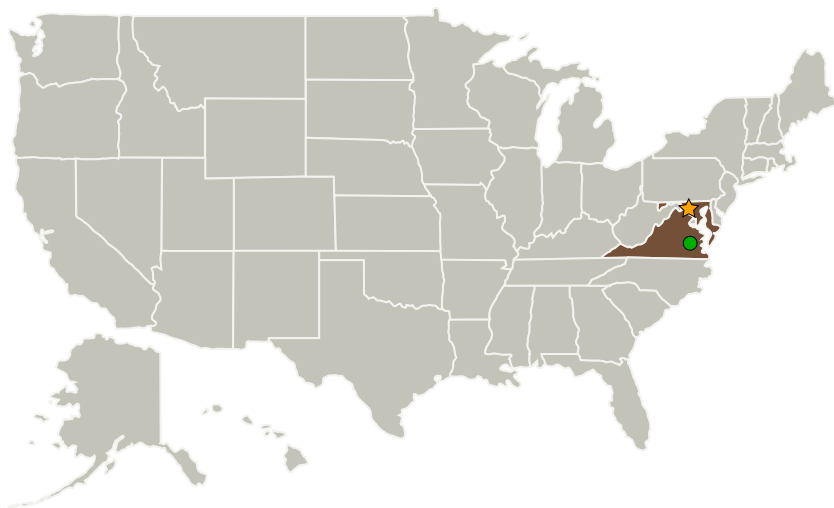
Project Introduction

The innovation is to have validated tools and processes to transform idealized designs into a true digital twin with 'as built' parameters modeled for enhanced performance predictions. First, we will transition from 'as designed' or idealized performance modeling to as built modeling using FiberSim® software. Secondly, we will validate the software's predictive capability with a global structure testing and local coupon testing taken from an existing application.

The existing HDWLT (pictured) contoured composite structure design, its analyses and manufacturing tools, will be used to validate key analyses inputs through structure manufacturing, collecting relevant test data and assessing the performance parameters.

Anticipated Benefits

N/A

Primary U.S. Work Locations and Key Partners

Hybrid Doppler Wind LIDAR Transceiver (HDWLT) Prototype Design

Manufacturing Tool

Predictive Modeling of Complex Contoured Composite Structures

Table of Contents

Organizations Performing Work	Role	Type	Location
⭐Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
🟢Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

Primary U.S. Work Locations	
Maryland	Virginia

Images

5227.jpg
Predictive Modeling of Complex Contoured Composite Structures
(https://techport.nasa.gov/image/1321)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Innovation Fund: GSFC CIF

Project Management

Program Director:

Michael R Lapointe

Program Manager:

Peter M Hughes

Project Manager:

Theodore D Swanson

Principal Investigator:

Kenneth N Segal

Co-Investigators:

David A Paddock
Ronald L Glenn
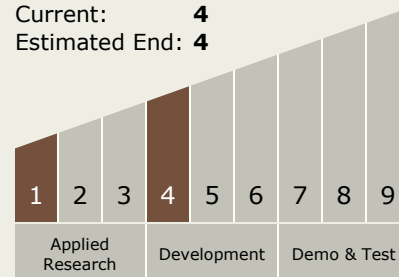Babak Farrokh
Steven W Gayle

TechPort

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For more information and an accessible alternative, please visit:
https://techport.nasa.gov/view/10845

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Technology Maturity (TRL)

Start: **1**
Current: **4**
Estimated End: **4**

1	2	3	4	5	6	7	8	9
Applied Research			Development			Demo & Test		

Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
  └ TX11.2 Modeling
    └ TX11.2.3 Human-System Performance Modeling